

**REMARKS**

Claim 9 has been rejected under 35 USC 112, first paragraph. This rejection is respectfully traversed.

The Examiner's position is that it is not clear how the tape is rotated on the article (disc) while translating on the article since the axis of rotation of the tape is not described. Applicants respectfully submit that the Examiner has not carefully reviewed the specification, in particular Figure 2 and the description of Figure 2 in paragraphs 29-32. Figure 2 clearly shows that the tape 19 is rotated over pulleys along the arm 20. One of the two pulleys at one end of arm 20 is shown in Figure 2 while the second pulley is not shown as it is covered by the arm. The arm 20 moves over the disc with a circular sweeping action with an offset angle " $\alpha$ " at any particular point in time. The arm could also move back and forth along the direction of the arm. In short, while the arm 20 moves with a circular sweeping action and/or backward and forward along the direction of the arm, the tape rotates over the two pulleys attached to the arm. Note that one of the pulleys could be attached to a motor such the pulley rotates, which in turn rotates the tape. As a result of these combined movements of the arm and tape, the tape is rotated on the article while translating on the article.

Claims 1-10 and 20 were rejected under 35 USC 112, second paragraph. This rejection is respectfully traversed.

The Examiner states that the meaning of the phrase "device that rotates the burnishing object" is indefinite. In the context of Figure 2, Applicants have clearly explained how the device rotates the burnishing object.

Claims 1-8 and 20 were rejected as being anticipated by Tateyama. This rejection is respectfully traversed.

Claim 20 has been canceled. Claim 1 recites "a device that (a) rotates the burnishing object to change the offset angle of the burnishing object and (b) *translates the burnishing object*

*relative to the disk to advance a position of a contact of the burnishing object across the surface of the disk*" (emphasis added). In short, the device arm 20 in Figure 2 of the specification can rotate with different offset angles  $\alpha$  and can *also* translate the burnishing object relative to the disk to advance a position of a contact of the burnishing object across the surface of the disk.<sup>1</sup> On the other hand, the burnishing object of Tateyama, i.e., brush 42, can only rotate along the shaft 44 extending in the Y direction and swing in the direction  $\theta$ , but it *cannot* translate along the Y direction. See column 4, lines 9-11, of Tateyama. In fact, Tateyama *intentionally does not* translate brush 42 along the Y direction. If it did, then brush 42 would come in the path of wafer detecting sensors 71 and 72 which are positioned to extend their optical axis along the passage 61a in the rotating shaft 61. See column 5, lines 23-26, of Tateyama. In short, Tateyama does not teach nor suggest a device that *both* (a) rotates the burnishing object to change the offset angle of the burnishing object and (b) *translates the burnishing object relative to the disk to advance a position of a contact of the burnishing object across the surface of the disk*.

Claims 9 and 10 were rejected under 35 USC 103(a) as unpatentable over Tateyama et al. This rejection is respectfully traversed.

Tateyama only discloses the use of a brush as a burnishing tool. It does not disclose a pad or a tape. The Examiner's position is that it would have been obvious to substitute a pad or a tape instead of a brush in the apparatus of Tateyama. The Examiner believes that the use of a brush in Tateyama is simply a design choice, though a tape or a pad could be interchangeably used in lieu of the brush. Applicants respectfully submit that the Examiner is incorrect. The substrate cleaning device of Tateyama requires the burnishing object must rotate along the shaft 44 extending in the Y direction and swing in the direction  $\theta$ . Both these requirements can only be met by using a circular brush such as that of Tateyama; neither a pad nor a tape could rotate along the shaft 44 of Tateyama.

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<sup>1</sup> Note that paragraph 30 of the specification explains: "In one embodiment, the process sequence for burnishing are the following: (1) Position the center of the burnishing object at location 1 on the disk and set the offset angle at  $\alpha$ . (2) Translate the center of burnishing object linearly to location 2 on the disk while maintaining the offset angle at  $\alpha$ . (3) Rotate the arm and change the offset angle to  $\beta$  while maintaining the center of the burnishing object at location 2."

In view of the above, each of the pending claims is in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, Applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing Attorney Docket No. 146712004200.

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Respectfully submitted,

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